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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/002,985

11/14/2001

Gregory C. Rouse

3460

7590

04/06/2004

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EXAMINER

RODRIGUEZ, WILLIAM H

ART UNIT

PAPER NUMBER

3746

DATE MAILED: 04/06/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No. 10/002,985	Applicant(s) ROUSE ET AL.	
	Examiner William H. Rodriguez	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6/18/02</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Specification*

1. The specification is objected to because reference characters "216" and "216C" have both been used to designate "rotor speed controller". See page 7 of specification lines 15 and 18.
2. The specification is objected to because reference characters "234" and "234C" have both been used to designate "bus voltage controller". See page 8 of specification lines 9 and 14.
3. The specification is objected to because reference character "32" has been used to designate both "common shaft" and "bearing rotor". See page 4 of specification lines 9 and 11.
4. In page 16 line 1 insert the word "be" before "determined" and after "then". Correction is required.

### *Drawings*

5. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: *temperature controller 228C; fuel pump 46; sensor 226S; fuel pump 50P; rotor speed controller 216C (see pages 6 and 7)*. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### *Claim Objections*

6. Claims 1, 15, 17 and 18 recite the limitation "a value" in lines 11, 14, 3 and 4-5 respectively. Examiner suggests replacing this phrase by --a temperature exhaust value-- in order to make clear what such value is referring to (i.e., a temperature value, a surge value, etc). Notice that the other claims recite a value, a surge value, a temperature value. So to avoid any

Art Unit: 3746

confusion for the reader it is recommended to specify what type of value is the claim referring to.

Appropriate correction is required.

7. Claim 3, 5, 7, 9, 11 and 13 recite the limitation "the temperature value" in lines 4, 5 and 10. Examiner suggests replacing this phrase by --the temperature exhaust value-- in order to make clear what such value is referring to (i.e., a temperature inlet value, a temperature exhaust value, etc). Appropriate correction is required.

8. Claim 5 recites the limitation "the temperature value" in lines 4, 5 and 10. Examiner suggests replacing this phrase by --the temperature exhaust value-- in order to make clear what such value is referring to (i.e., a temperature inlet value, a temperature exhaust value, etc). Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 112***

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

11. The term "*a predetermined lower surge value; a predetermined upper surge value*" in claims 1, 4, 6, 10, 12, 15, 19 and 20 is improperly used because surge is not measured in terms of values (i.e., 2.5 surge, 5 surge) but rather is a situation (a phenomenon occurring in compressors). For instance, it is not customary practice in the art to say, this compressor has a 2.5 surge value. Appropriate correction is required.

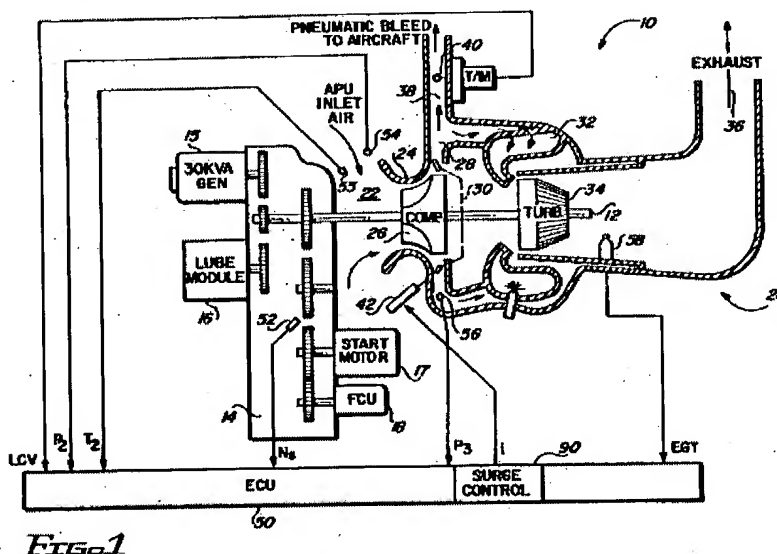
*Claim Rejections - 35 USC § 102*

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

13. Claims 1-20 are rejected under 35 U.S.C. 102(b) as being anticipated by **Evenson et al.** (U.S. 5,222,356).



With respect to claim 15, **Evenson et al.** teach a system, comprising: a turbine 34 driven by hot gas; a combustor 32 for combusting fuel and compressed air to generate the hot gas; an air compressor 24 rotationally coupled to the turbine 34 to provide the compressed air; a bleed valve 40 connected to the compressor discharge to vent a selectable portion of the compressed air while the system speed is between a predetermined lower surge line and a predetermined upper surge line to prevent the compressor from stalling; and a controller 50 for controlling

Art Unit: 3746

system speed  $N_s$  to provide a required amount of power, controlling the bleed valve 40 to maintain a required airflow through the turbine inlet, and controlling the turbine exit temperature EGT to a temperature exhaust value derived as a function of system speed  $N_s$  and ambient conditions  $P_2$ ,  $T_2$ . See particularly **Figure 1**, column 3 line 20-22, and column 3 lines 39-54 of Evenson.

With respect to claim 16, **Evenson et al.** does not schematically show a plurality of fuel and air injectors for selectively providing fuel and air to maintain a selected air-to-fuel ratio in the combustor. However, it is inherent that the Evenson's system would have had a plurality of fuel and air injectors for selectively providing fuel and air to maintain a selected air-to-fuel ratio in the combustor .

With respect to claims 17-20, the apparatus of Evenson will inherently have performed the apparatus/method claims as recited by applicant. For instance, Evenson's controller 50 prevents surge or stall from happening based on monitoring changes in gas turbine engine (GTE) parameters such as but not limited to: exhaust temperature, system speed, ambient conditions, etc. It is inherent that once the system has detected abnormal readings of GTE parameters, the controller will send a signal to blow off some compressed air, change the amount of fuel being delivered to the combustor in order to maintain a corresponding desired system speed and to extend the life of the system since surge/stall can be destructive.

With respect to claims 1-14, since Evenson has the same structure as claimed, it is inherent that Evenson's system would be able to perform the recited method steps.

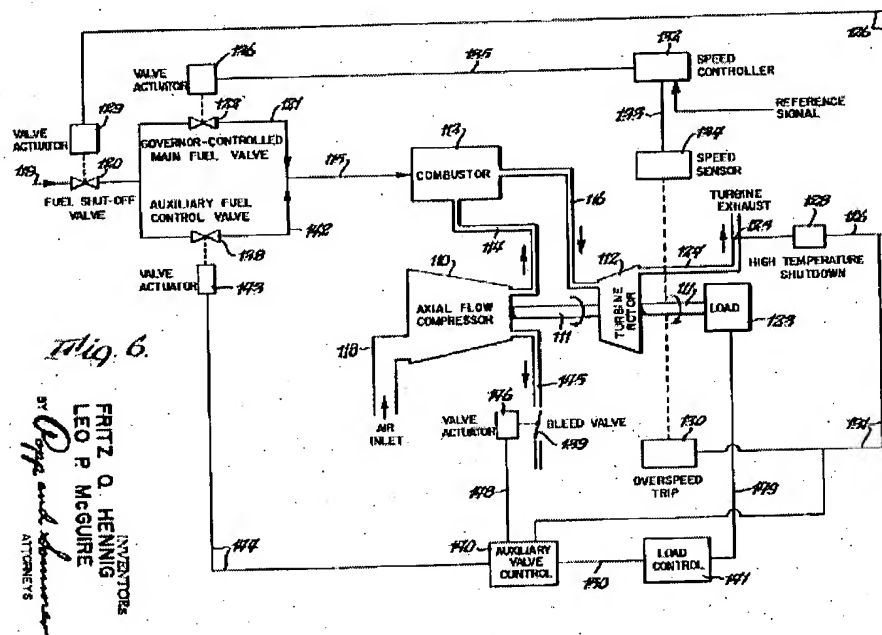
Art Unit: 3746

**Claim Rejections - 35 USC § 103**

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 1-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Henning et al.** (U.S. 3,255,586) in view of **Anand et al.** (U.S. 6,546,234).



With respect to claim 15, **Henning et al.** teach a system, comprising: a turbine 112 driven by hot gas; a combustor 113 for combusting fuel and compressed air to generate the hot gas; an air compressor 110 rotationally coupled to the turbine 112 to provide the compressed air; a bleed valve 139 connected to the compressor discharge to vent a selectable portion of the compressed air; and a controller 140, 132 for controlling system speed to provide a required amount of

Art Unit: 3746

power, controlling the bleed valve 139 to maintain a required airflow through the turbine inlet, and controlling the turbine exit temperature TET to a temperature exhaust value derived as a function of system speed. **Henning** does not mention that the bleed-off of air is done to prevent or eliminate compressor surge or that the temperature exhaust value is derived as a function of ambient conditions. However, it is well known in the art that bleeding-off air from the compressor prevents surge from happening so indirectly Henning's bleed valve 139 prevents the compressor from stalling. Further, **Anand et al.** teach that low ambient conditions lead to compressor surge. Thus, although **Henning** does not mention controlling ambient conditions to prevent a compressor surge, ~~Therefore~~, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have included a controller that monitors ambient conditions since these could lead to a surge compressor. See particularly **Figure 6** of Henning, and column 4 line 20-24 of Anand.

With respect to claim 16, **Henning et al.** does not schematically show a plurality of fuel and air injectors for selectively providing fuel and air to maintain a selected air-to-fuel ratio in the combustor. However, it is inherent that the Henning's system would have had a plurality of fuel and air injectors for selectively providing fuel and air to maintain a selected air-to-fuel ratio in the combustor .

With respect to claims 17-20, the apparatus of Henning in view of Anand will inherently have performed the apparatus/method claims as recited by applicant. For instance, Henning-Anand's controller prevents surge or stall from happening based on monitoring changes in gas turbine engine (GTE) parameters such as but not limited to: exhaust temperature, system speed, ambient conditions, etc. It is inherent that once the system has detected abnormal readings of



Art Unit: 3746

GTE parameters, the controller will send a signal to blow off some compressed air, change the amount of fuel being delivered to the combustor in order to maintain a corresponding desired system speed and to extend the life of the system since surge/stall can be destructive.

With respect to claims 1-14, since Henning in view of Anand has the same structure as claimed, it is inherent that Henning-Anand's system would be able to perform the recited method steps.


***Contact information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to William H. Rodriguez whose telephone number is 703-605-1140. The examiner can normally be reached on Monday-Friday 7:30 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Justine R Yu can be reached on 703-308-2675. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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4/2/04